

WHAT IS CLAIMED IS:

1. A composition suitable for capturing unwanted molecules, the composition comprising functionally-available cyclodextrin and a cyclodextrin-compatible surfactant selected from the group consisting of castor oil surfactant, polyethoxylated fatty alcohol surfactant, polypropoxylated fatty alcohol surfactant, glycerol mono-fatty acid ester surfactant, polyethylene glycol fatty acid ester surfactant, polypropylene glycol fatty acid ester surfactant, fluorocarbon surfactant, and mixtures thereof; wherein the concentration of functionally-available cyclodextrin is at least about 0.001%.
2. A composition according to Claim 1 wherein the concentration of functionally-available cyclodextrin is at least about 0.01%.
3. A composition according to Claim 1 wherein the level of functionally-available cyclodextrin is at least about 10% of the level of functionally-available cyclodextrin which would be present in an equivalent composition containing none of the cyclodextrin-incompatible material.
4. A composition according to Claim 3 wherein the level of functionally-available cyclodextrin is at least about 30% of the level of functionally-available cyclodextrin which would be present in an equivalent composition containing none of the cyclodextrin-incompatible material.
5. A composition according to Claim 4 wherein the level of functionally-available cyclodextrin is at least about 50% of the level of functionally-available cyclodextrin which would be present in an equivalent composition containing none of the cyclodextrin-incompatible material.
6. A composition according to Claim 1 wherein at least about 10% of the total cyclodextrin present in said composition is in functionally-available form.
7. A composition according to Claim 6 wherein at least about 30% of the total cyclodextrin present in said composition is in functionally-available form.
8. A composition according to Claim 7 wherein at least about 50% of the total cyclodextrin present in said composition is in functionally-available form.

9. A composition according to Claim 1 wherein said composition comprises from about 0.01% to about 5%, by weight, of functionally-available cyclodextrin.

10. A composition according to Claim 9 wherein said composition comprises from about 0.1% to about 4%, by weight, of functionally-available cyclodextrin.

11. A composition according to Claim 1 wherein said composition comprises from about 5% to about 40%, by weight, of functionally-available cyclodextrin.

12. A composition according to Claim 11 wherein said composition comprises from about 7% to about 15%, by weight, of functionally-available cyclodextrin.

13. A composition according to Claim 1 wherein said composition further comprises cyclodextrin-incompatible surfactant, wherein said cyclodextrin-incompatible surfactant has a complexation constant with cyclodextrin of greater than about $5,000 \text{ M}^{-1}$ and said cyclodextrin-compatible surfactant has a complexation constant with cyclodextrin of no greater than about $5,000 \text{ M}^{-1}$.

14. A composition according to Claim 13 wherein said said cyclodextrin-incompatible surfactant has a complexation constant with cyclodextrin of greater than about $8,000 \text{ M}^{-1}$ and said cyclodextrin-compatible surfactant has a complexation constant with cyclodextrin of no greater than about $3,000 \text{ M}^{-1}$.

15. A composition according to Claim 1 wherein said composition further comprises cyclodextrin-incompatible surfactant, wherein said cyclodextrin-incompatible surfactant has a ClogP value of at least about 3.

16. A composition according to Claim 15 wherein said cyclodextrin-incompatible surfactant has a ClogP value of at least about 3.5.

17. A composition according to Claim 13 wherein said composition comprises molecular aggregates comprising said cyclodextrin-compatible surfactant and said cyclodextrin-incompatible surfactant.

18. A composition according to Claim 1 wherein said composition additionally comprises a hydrotrope which is an organic compound having a complexation constant with cyclodextrin of no greater than about $1,000 \text{ M}^{-1}$.

19. A composition according to Claim 1 wherein said cyclodextrin-compatible surfactant has a critical micelle concentration (CMC) not more than about 10^{-2} mol/l .

20. A composition according to Claim 19 wherein said said cyclodextrin-compatible surfactant has a critical micelle concentration (CMC) not more than about 10^{-3} mol/l .

21. A composition according to Claim 20 wherein said cyclodextrin-compatible surfactant has a critical micelle concentration (CMC) not more than about 10^{-4} mol/l .

22. A composition according to Claim 1 wherein a mixture of all surfactants present in the composition has a CMC of not more than about 10^{-2} mol/l .

23. A composition according to Claim 22 wherein said mixture of all surfactants present in the composition has a CMC of not more than about 10^{-3} mol/l .

24. A composition according to Claim 23 wherein said mixture of all surfactants present in the composition has a CMC of not more than about 10^{-4} mol/l .

25. A composition according to Claim 13 wherein said cyclodextrin-incompatible surfactant has a CMC of greater than about 10^{-2} mol/l .

26. A composition according to Claim 13 wherein said composition comprises at least one surfactant which has CMC greater than about 10^{-2} mol/l and wherein a mixture of all surfactants present in the compositions has CMC not more than about 10^{-2} mol/l .

27. A composition according to Claim 1 wherein said cyclodextrin-compatible surfactant has a complexation constant with cyclodextrin of no greater than about $5,000 \text{ M}^{-1}$.

28. A composition according to Claim 27 wherein said cyclodextrin-compatible surfactant has a complexation constant with cyclodextrin of no greater than about $3,000 \text{ M}^{-1}$.

29. A composition according to Claim 1 wherein said cyclodextrin-compatible surfactant is a nonionic surfactant.

30. A composition according to Claim 29 wherein said nonionic surfactant has a molecular weight of at least about 250.

31. A composition according to Claim 17 wherein said molecular aggregates are micelles or vesicles comprising said cyclodextrin-compatible surfactant and said cyclodextrin-incompatible surfactant.

32. A composition according to Claim 17 wherein all surfactants in the composition form part of said molecular aggregates.

33. A composition according to Claim 1 wherein said composition additionally comprises a polymer wherein a mixture of polymer and all surfactants present in the composition has CMC not more than about 10^{-2} mol/l.

34. A composition according to Claim 33 wherein said mixture of polymer and all surfactants present in the composition has CMC not more than about 10^{-3} mol/l.

35. A composition according to Claim 34 wherein said mixture of polymer and all surfactants present in the composition has CMC not more than about 10^{-4} mol/l.

36. A composition according to Claim 33 wherein said composition comprises at least one ionic surfactant and wherein said polymer is nonionic or has a charge opposite to that of the surfactant.

37. A composition according to Claim 1 wherein said cyclodextrin-compatible surfactant is present at a concentration above its CMC.

38. A composition according to Claim 1 wherein said composition further comprises a buffering agent; wherein said buffering agent has at least one pK_a value and/or pK_b value of from about 2 to about 11 and said composition has a pH of from about 2 to about 11.

39. A composition according to Claim 38 wherein said buffering agent is selected from the group consisting of acridine, phenylalanine, allothreonine, n-amylamine, aniline, n-allylaniline, 4-

bromoaniline, 4-bromo-N,N-dimethylaniline, m-chloroaniline, p-chloroaniline, 3-chloro-N,N-dimethylaniline, 3,5-dibromoaniline, N,N-diethylaniline, N,N-dimethylaniline, N-ethylaniline, 4-fluoroaniline, N-methylaniline, 4-methylthioaniline, 3-sulfonic acid aniline, 4-sulfonic acid aniline, p-anisidine, arginine, asparagine, glycyl asparagine, DL-aspartic acid, aziridine, 2-aminoethylbenzene, benzidine, benzimidazole, 2-ethylbenzimidazole, 2-methylbenzimidazole, 2-phenylbenzimidazole, 2-aminobenzoic acid, 4-aminobenzoic acid, benzylamine, 2-aminobiphenyl, brucine, 1,4-diaminobutane, t-butylamine 4-aminobutyric acid, glycyl-2-amino-n-butyric acid, cacodylic acid, β -chlortriethylammonium-n-butyric acid, codeine, cyclohexylamine, cystine, n-decylamine, diethylamine, n-dodecaneamine, l-ephedrine, 1-amino-3-methoxyethane, 1,2-bismethylaminoethane, 2-aminoethanol, ethylenediamine, ethylenediaminetetraacetic acid, diethylenetriaminopentaacetic acid, N-(hydroxyethyl)-ethylenediaminetriacetic acid, l-glutamic acid, α -monoethylglutamic acid, l-glutamine, l-glutathione, glycine, n-acetylglycine, dimethylglycine, glycylglycylglycine, leucylglycine, methylglycine, phenylglycine, N-n-propylglycine, tetraglycylglycine, glycylserine, dodecaneamine, 1-aminoheptane, 2-aminoheptane, 2-aminohexanoic acid, DL-histidine, β -alanylhistidine, imidazole, 1-aminoindane, 2-aminoisobutyric acid, isoquinoline, 1-aminoisoquinoline, 7-hydroxyisoquinoline, l-leucine, glycylleucine, methionine, methylamine, morphine, morpholine, 1-amino-6-hydroxynaphthalene, dimethylaminonaphthalene, α -naphthylamine, β -naphthylamine, n-methyl- α -naphthylamine, cis-neobornylamine, nicotine, n-nonylamine, octadecaneamine, octylamine, ornithine, papaverine, 3-aminopentane, valeric acid, permidine, phenanthridine, 1,10-phenanthroline, 2-ethoxyaniline, 3-ethoxyaniline, 4-ethoxyaniline, α -picoline, β -picoline, γ -picoline, pilocarpine, piperazine, trans-2,5-dimethylpiperazine, 1-n-butylpiperidine, 1,2-dimethylpiperidine, 1-ethylpiperidine, 1-methylpiperidine, proline, hydroxyproline, 1-amino-2,2-dimethylpropane, 1,2-diaminopropane, 1,3-diaminopropane, 1,2,3-triaminopropane, 3-aminopropanoic acid, pteridine, 2-amino-4,6-dihydroxypteridine, 2-amino-4-hydroxypteridine, 6-chloropteridine, 6-hydroxy-4-methylpteridine, purine, 6-aminopurine, 2-dimethylaminopurine, 8-hydroxypurine, 2-methylpyrazine, 2-amino-4,6-dimethylpyrimidine, pyridine, 2-aldoximepyridine, 2-aminopyridine, 4-aminopyridine, 2-benzylpyridine, 2,5-diaminopyridine, 2,3-dimethylpyridine, 2,4-dimethylpyridine, 3,5-dimethylpyridine, 2-ethylpyridine, methoxypyridine, 4-methylaminopyridine, 2,4,6-trimethylpyridine, 1,2-dimethylpyrrolidine, n-methylpyrrolidine, 5-hydroxyquinazoline, quinine, 3-quinolinol, 8-quinolinol, 8-hydroxy-5-sulfoquinoline, 6-methoxyquinoline, 2-methylquinoline, 4-methylquinoline, 5-methylquinoline, serine, strychnine, taurine, myristilamine, 2-aminothiazole, threonine, o-toluidine, m-toluidine, p-toluidine, 2,4,6-triamino-1,2,3-triazine, tridecaneamine, trimethylamine, tryptophan, tyrosine, tyrosineamide, valine, acetic acid, acetoacetic acid, acrylic acid, adipamic acid, adipic acid, d-alanine, allantoin acid, alloxanic acid, α -aminoacetic acid, o-aminobenzoic acid, p-aminobenzoic acid, m-

aminobenzenesulfonic acid, p-aminobenzenesulfonic acid, anisic acid, o-β-anisylpropionic acid, m-β-propionic acid, p-β-propionic acid, ascorbic acid, DL- aspartic acid, barbituric acid, benzoic acid, m-bromobenzoic acid, n-butyric acid, iso-butyric acid, cacodylic acid, n-caproic acid, iso-caproic acid, m-chlorobenzoic acid, p-chlorobenzoic acid, β-chlorobutyric acid, γ-chlorobutyric acid, o-chlorocinnamic acid, m-chlorocinnamic acid, p-chlorocinnamic acid, o-chlorophenylacetic acid, m-chlorophenylacetic acid, p-chlorophenylacetic acid, β-(o-chlorophenyl)propionic acid, β-(m-chlorophenyl)propionic acid, β-(p-chlorophenyl)propionic acid, β-chloropropionic acid, cis-cinnamic acid, trans-cinnamic acid, citric acid, o-cresol, m-cresol, p-cresol, trans-crotonic acid, cyclohexane-1:1-dicarboxylic acid, cyclopropane-1:1-dicarboxylic acid, DL-cysteine, L-cysteine, deuterioacetic acid, 2,3-dichlorophenol, 3,4-dihydroxybenzoic acid, 3,5-dihydroxybenzoic acid, dimethylglycine, dimethylmalic acid, 2,4-dinitrophenol, 3,6-dinitrophenol, diphenylacetic acid, ethylbenzoic acid, formic acid, trans-fumaric acid, gallic acid, glutaramic acid, glutaric acid, glycine, glycolic acid, heptanoic acid, hexahydrobenzoic acid, hexanoic acid, hippuric acid, histidine, hydroquinone, m-hydroxybenzoic acid, p-hydroxybenzoic acid, β-hydroxybutyric acid, γ-hydroxybutyric acid, β-hydroxypropionic acid, γ-hydroxyquinoline, iodoacetic acid, m-iodobenzoic acid, itaconic acid, lysine, maleic acid, malic acid, malonic acid, DL-mandelic acid, mesaconic acid, mesitylenic acid, methyl-o-aminobenzoic acid, methyl-m-aminobenzoic acid, methyl-p-aminobenzoic acid, o-methylcinnamic acid, m-methylcinnamic acid, p-methylcinnamic acid, β-methylglutaric acid, n-methylglycine, methylsuccinic acid, o-monochlorophenol, m-monochlorophenol, p-monochlorophenol, α-naphthoic acid, β-naphthoic acid, α-naphthol, β-naphthol, nitrobenzene, m-nitrobenzoic acid, p-nitrobenzoic acid, o-nitrophenol, m-nitrophenol, p-nitrophenol, o-nitrophenylacetic acid, m-nitrophenylacetic acid, p-nitrophenylacetic acid, o-β-nitrophenylpropionic acid, m-β-nitrophenylpropionic acid, p-β-nitrophenylpropionic acid, nonanic acid, octanoic acid, oxalic acid, phenol, phenylacetic acid, o-phenylbenzoic acid, γ-phenylbutyric acid, α-phenylpropionic acid, β-phenylpropionic acid, o-phthalic, m-phthalic, p-phthalic, pimelic acid, propionic acid, iso-propylbenzoic acid, 2-pyridinecarboxylic acid, 3-pyridinecarboxylic acid, 4-pyridinecarboxylic acid, pyrocatechol, resorcinol, saccharin, suberic acid, succinic acid, α-tartaric acid, meso-tartaric acid, theobromine, terephthalic acid, thioacetic acid, thiophenecarboxylic acid, o-toluic acid, m-toluic acid, p-toluic acid, trichlorophenol, trimethylacetic acid, tryptophan, tyrosine, uric acid, n-valeric, iso-valeric, veronal acid, vinylacetic acid, xanthine, arsenic acid, arsenious acid, o-boric acid, carbonic acid, chromic acid, germanic acid, hydrocyanic acid, hydrofluoric acid, hydrogen sulfide, hypobromous acid, nitrous acid, o-phosphoric acid, phosphorous acid, pyrophosphoric acid, selenious acid, m-silicic acid, o-silicic acid, sulfurous acid, telluric acid, tellureous acid, tetraboric acid, and mixtures thereof.

40. A composition according to Claim 38 wherein said buffering agent is selected from the group consisting of 3-chloropropanoic acid, citric acid, ethylenedinitrilotetraacetic acid, diethylenetriaminepentaacetic acid, N-(hydroxyethyl)-ethylenediaminetriacetic acid, alanine, aminobenzene, sulfanilic acid, 2-aminobenzoic acid, 2-aminophenol, ammonia, arginine, asparagine, aspartic acid, dimethyleneimine, benzene-1,2,3-tricarboxylic acid, benzoic acid, benzylamine, 2,2-bipyridine, butanoic acid, maleic acid, carbonic acid, dichloroacetic acid, diethylamine, catechol, resorcinol, d-tartaric acid, ethylenediamine, glutamic acid, glutamine, glycine, adipic acid, hydrogen hypophosphite, isoleucine, leucine, methionine, 3-nitrobenzoic acid, 4-nitrobenzoic acid, phthalic acid, iodoacetic acid, histidine, lysine, 4-methylaniline, o-cresol, 2-naphthoic acid, nitrilotriacetic acid, 2-nitrobenzoic acid, 4-nitrophenol, 2,4-dinitrophenol, N-nitrosophenylhydroxylamine, nitrous acid, phosphoric acid, phenylalanine, piperidine, serine, hydrogen sulfite, threonine, tris(hydroxymethyl) aminomethane, tyrosine; alkali metal salts thereof; ammonium salts thereof; and mixtures thereof.

41. A composition according to Claim 38 wherein said buffering agent is an alkali metal salt of an organic acid and/or inorganic acid.

42. A composition according to Claim 1 wherein said composition is a composition for capturing malodorous molecules.

43. A composition according to Claim 42 wherein said composition is a cleaning product selected from the group consisting of a liquid cleaning product, a fabric refresher, a hair care product, a personal washing product, a deodorant, and a composition for impregnation into a wipe.

44. A composition according to Claim 43 wherein said cleaning product is a fabric refresher product.

45. A process of manufacturing a composition suitable for capturing unwanted molecules comprising the steps of:

- (a) providing cyclodextrin, a cyclodextrin-compatible surfactant, and a cyclodextrin-incompatible material;
- (b) combining said cyclodextrin-compatible surfactant and said cyclodextrin-incompatible material to form a first mixture; and
- (c) subsequently combining said cyclodextrin with said first mixture to form said composition suitable for capturing unwanted molecules.

46. A process according to Claim 45 wherein said process comprises combining said cyclodextrin-compatible surfactant and said cyclodextrin-incompatible material with water to form a first aqueous mixture and subsequently adding cyclodextrin to said first aqueous mixture to form said composition suitable for capturing unwanted molecules.

47. A process according to Claim 45 wherein said process comprises combining said cyclodextrin-compatible surfactant and said cyclodextrin-incompatible material to form a first mixture, combining said cyclodextrin with water to form a second aqueous mixture and combining the first mixture and the second aqueous mixture to form said composition suitable for capturing unwanted molecules.

48. A process according to Claim 45 wherein said first mixture comprises said cyclodextrin-incompatible material solubilised in micelles or vesicles comprising said cyclodextrin-compatible surfactant as molecular aggregates.

49. A method of removing unwanted molecules from a surface comprising applying to the surface a composition according to Claim 1 and allowing the composition to dry.

50. A method according to Claim 49 wherein said surface is a fabric.

51. A cleaning method comprising applying to the article or articles to be cleaned a composition according to Claim 1.

52. A method according to Claim 51 wherein said articles to be cleaned are garments, dishware, or hard surfaces.